

REMARKS

With the entry of the present amendments, Claims 42, 62-66, and 71-90 are pending in the application. Claims 1-41, 47-61, and 67-70 have been canceled without prejudice to Applicant's right to prosecute these claims in a timely filed continuation application. Claims 42 and 71 have been amended. New claims 72-90 have been added. Support for the amendments and new claims may be found throughout the application as filed, including, but not limited to, page 19, lines 9-21 and page 20, line 22 through page 21, line 2.

In view of the following remarks, reconsideration and withdrawal of the objections and rejections to the application in the Office Action is respectfully requested.

I. Claim Objections

Independent claims 67 and 70 were objected to based on the use of the phrases "adapted to," "the first electrode material," and "the second electrode material." Claims 67 and 70 have been cancelled, rendering these objections moot.

Independent claim 71 was objected to based on the phrase "wherein the substrate material may be." As Applicant does not believe this particular claim limitation is necessary for the patentability of claim 71, the claim has been amended to remove the offending phrase. Therefore, Applicant respectfully requests that this objection be withdrawn.

II. Rejection of Claims 13-16, 19, 22, 23, 30, 32-34, 36, 38, 42-46 and 52-70.

In the Office Action, Claims 13-16, 19, 22, 23, 30, 32-34, 36, 38, 42-46 and 52-70 were rejected under 35 U.S.C. § 103(a) over U.S. Patent Application Publication No. 2003/0080677, filed by Mikhael *et al.* (hereinafter "Mikhael") in view of U.S. Patent No. 6,918,946 issued to Korgel *et al.* (hereinafter "Korgel"). In order to expedite the prosecution of the application, Applicant has cancelled claims 13-16, 19, 22, 30, 32-34, 38, 43-46 and 52-70, thereby rendering the rejection moot with respect to these claims. For this reason, Applicants respectfully request

that these rejections be withdrawn. The only remaining claim to which this rejection pertains is claim 42.

With the entry of the present amendment, claim 42 has been amended to recite a method of making a light-emitting subassembly that include a light emitting layer, a first electrode layer and a second electrode layer, wherein the light emitting layer is “formed on one of the first or second electrode layers by printing an ink comprising the light emitting group IV nanoparticles, a binder and a solvent onto the first or second electrode layer.”

As acknowledged by the Examiner on page 10, second paragraph of the Office Action, Mikhael does not disclose a method comprising formulating a printable group IV nanostructure ink composition. More specifically, Mikhael fails to disclose a printable ink comprising light-emitting group IV nanoparticles, a binder and a solvent, as recited in amended claim 42. Korgel fails to cure this deficiency. Korgel fails to disclose a printable ink composition comprising group IV nanoparticles or methods for forming a light-emitting layer using a printable ink comprising group IV nanoparticles.

Because Mikhael and Korgel, alone or in combination, fail to teach or suggest each and every limitation of amended claim 42, Applicant respectfully requests that the rejection of this claim, and any claims depending therefrom, be withdrawn.

III. Rejection of Claims 18, 35, 37 and 39.

In the Office Action, Claims 18, 35, 37 and 39 were rejected under 35 U.S.C. § 103(a) over Mikhael in view of Korgel and further in view of U.S. Patent Application Publication No. 2004/0031966. In order to expedite the prosecution of the application, Applicant has cancelled claims 18, 35, 37 and 39, thereby rendering these rejections moot. For this reason, Applicants respectfully request that these rejections be withdrawn.

IV. Rejection of Claim 71

In the Office Action, Claim 71 was rejected under 35 U.S.C. § 103(a) over Mikhael in view of Korgel and further in view of U.S. Patent Application Publication No. 2005/0224765, filed by Hsu *et al.* (hereinafter “Hsu”). Applicant respectfully traverses.

For the reasons discussed in Section II, above, Applicant submits that the combination of Mikhael and Korgel fails to teach or suggest a method for making a light-emitting subassembly including a light-emitting layer, a first electrode material and a second electrode material, wherein the light-emitting layer is “formed on one of the first or second electrode layers by printing an ink comprising the light emitting group IV nanoparticles, a binder and a solvent onto the first or second electrode layer.” Hsu fails to cure this deficiency.

Regarding Hsu, the Examiner states:

“Hsu discloses a light emitting device (paragraph 2) using nanoparticle ink (paragraph 87), for the purpose of enhancing manufacturability.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have light-emitting group IV nanoparticles disclosed by Korgel and nanoparticle ink disclosed by Hsu in the light-emitting device disclosed by Mikhael, for the purpose of enhancing light emission.”

Applicant respectfully traverses.

Paragraph 87 of Hsu describes buffer layers deposited from non-aqueous dispersions. Hsu teaches that the dispersions may include metal nanoparticles, ferroelectric oxide nanoparticles, or photoconductive oxide nanoparticles. Hsu does NOT teach that the dispersions may include light-emitting group IV semiconductor nanoparticles. The purpose of the buffer layers, as described by Hsu, is as follows:

“The term “buffer layer” as used herein, is intended to mean an electrically conductive or semiconductive layer which can be used between

an anode and an active organic material. A buffer layer is believed to accomplish one or more functions in an organic electronic device, including, but not limited to planarization of the underlying layer, hole transport, hole injection, scavenging of impurities, such as oxygen and metal ions, among other aspects to facilitate or to improve the performance of an organic electronic device.” (Paragraph 83)

Thus, the dispersion described by Hsu is NOT intended to be used in the formation of, or even to have the ability to form, a *light-emitting* layer. Rather, the buffer layer is intended to perform hole transport, hole injection and impurity scavenging functions in an organic electroluminescent device. In fact, the light-emitting layer in Hsu is the “active organic material” and not the buffer layer. Thus, in view of the intended purpose of the buffer layer disclosed by Hsu, there is no apparent reason to include the light-emitting group IV nanoparticles of Korgel in the dispersion of Hsu “for the purpose of enhancing light emission,” as asserted by the Examiner. Therefore, because Mikhael, Korgel and Hsu fail to teach or suggest a light-emitting layer formed by printing an ink comprising light-emitting group IV nanoparticles, a binder and a solvent onto an electrode, these references fail to provide a *prima facie* case of obviousness against claim 71. For this reason, Applicant respectfully requests that the rejection of claim 71 and all claims depending therefrom be withdrawn.

In view of the foregoing remarks, Applicant respectfully submits that all of the claims remaining in the application are in condition for allowance and favorable action thereon is respectfully solicited.

Respectfully submitted,

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